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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/067,208	04/28/1998	WILLIAM G. HOWARD	P-7860	9814
27581	7590	08/02/2004	EXAMINER	
MEDTRONIC, INC.			CREPEAU, JONATHAN	
710 MEDTRONIC PARKWAY NE			ART UNIT	
MS-LC340			PAPER NUMBER	
MINNEAPOLIS, MN 55432-5604			1746	

DATE MAILED: 08/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

S.C.

Office Action Summary	Application No.		Applicant(s)	
	09/067,208		HOWARD, WILLIAM G.	
	Examiner		Art Unit	
	Jonathan S. Crepeau		1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-8,10,12-17,95,96 and 104-115 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-8,10,12-17,95,96 and 104-115 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office action addresses claims 1, 3-8, 10, 12-17, 95, 96, and newly added claims 104-115. Claims 105 and 106 are rejected under 35 USC §112, first paragraph but contain allowable subject matter. Although they have been amended, claims 1, 3-8, 10, 12-17, 95, and 96 remain rejected for substantially the reasons of record, and claims 104 and 107-115 are newly rejected as necessitated by amendment. Accordingly, this action is made final.

Claim Objections

2. Claim 111 is objected to because of the following informalities: in line 3, “comprises” is extraneous and should be deleted. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 105 and 106 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which

was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 105 and 106 recite that the current collector dimension comprises “approximately less than about half” and “approximately less than about one-fourth” the anode dimension, respectively. The originally-filed application does not appear to adequately support these recitations. On page 12, the specification discloses that “[f]or example, length L or height H of anode current collector 5 may be about 90%, about 80%, about 70%, about 60%, about 50%, about 40%, about 30%, about 20%, about 15%, about 10% or about 5% of the lengths or heights corresponding to alkali metal strips 10 or 15 pressed or disposed on anode current collector 5.” It is submitted that the language “approximately less than” used in the instant claims does not have adequate basis, and additionally, the recitation of “one-fourth” (i.e., 25%) also does not appear to have adequate support in the above passage. As such, the instant claims are believed to contain new matter.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 104, 108, 109, 111-113, and 115 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeuchi et al (U.S. Pat. 5,549,717).

Regarding claim 104, in Figure 4 and in column 3, line 36-column 4, line 55, Takeuchi et al. teach an electrode assembly having two substantially straight sides and comprising spirally-wound anode and cathode assemblies. Regarding claim 114, the anode assembly comprises a nickel current collector (68) and lithium strips (64, 66). Regarding claim 109, a tab (72) extends from the edge of current collector 68. Regarding claims 104 and 115, current collector 68 has a length and width that are "substantially less" than the length and width of lithium strip 66 (see col. 4, line 39; Figs. 7 and 8). Regarding claims 108 and 112, the anode current collector comprises a screen (see col. 4, line 38). Regarding claim 111, the tab (72) is situated longitudinally at the same length as end of the anode current collector (see Fig. 8).

Thus, the instant claims are anticipated.

Claim Rejections - 35 USC § 103

7. Claims 1, 3-8, 10, 12-17, 95, 96, 107, and 110 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi et al in view of Howard et al (U.S. Patent 5,439,760).

Takeuchi is applied to claims 104, 108, 109, 111-113, and 115 for the reasons stated above. Further, regarding claims 1, 4, 6, 10, 13, and 15, the cathode assembly comprises silver vanadium oxide active material (47) which is embedded into a titanium current collector (54).

Regarding claims 1 and 10, the current collector 54 comprises tabs (48, 50) extending from the edges. Regarding claims 5-8 and 14-17, Takeuchi et al. incorporate by reference the disclosure of Keister et al (U.S. Pat. 4,830,940), which discloses that the cathode can comprise a mixture of silver vanadium oxide, PTFE binder, and graphite powder conductivity enhancer (col. 8, lines 37-42 of Keister et al). Regarding claim 95, in column 4, line 26, Takeuchi et al. disclose that the separator surrounding the cathode assembly is sealed on all three open sides so that only the tabs project. In column 5, line 25, Takeuchi et al. disclose that alternatively, a separator may be folded around the anode assembly in a manner similar to the cathode assembly. Regarding claims 1, 10, and 96, in Figures 7, 8, and 10 and in column 5, line 63 et seq., the reference discloses that the portion of the anode (80) around the periphery of the electrode assembly (i.e., the “end segment”) requires only one lithium strip.

Takeuchi et al. do not expressly teach that the alkali metal strips are “mechanically bonded” to the anode current collector, as recited in claims 1 and 10. Takeuchi et al. also do not expressly teach that the anode current collector comprises two tabs, as recited in claim 110, or that the separators cover both the cathode and anode assemblies simultaneously, as recited in claim 95. Further, the reference does not expressly teach that the anode current collector forms the outermost layer of the electrode assembly (claims 96 and 107).

However, it is believed that the disclosure of Takeuchi et al. provides sufficient guidance for the artisan to ascertain that the anode current collector forms the outer layer (winding) of the electrode assembly. As stated above, the reference discloses that the portion of the anode around the periphery of the electrode assembly requires only one lithium strip. From this disclosure, the

artisan would be able to ascertain that the one lithium strip would be present on the inside portion of the anode current collector, in order to make contact with a corresponding cathode active material layer. Accordingly, it would be well within the skill of the art to ascertain that the anode current collector would form the outer layer of the electrode assembly.

Howard et al. teach pocket-type separators covering spirally wound anode and cathode assemblies in column 3, lines 37-46. In claim 3 and in column 4, line 65, Howard et al. teach that the alkali metal strips are "bonded" (i.e., pressed) to the anode current collector. The reference further teaches that the anode current collector comprises two tabs (20, 22).

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to mechanically bond (i.e., press) the alkali strips of Takeuchi into the current collector thereof. As noted above, Howard et al. teach this configuration in column 4, line 65. Such configuration would be advantageous in the battery of Takeuchi because intimate contact of active material and its current collector is beneficial to battery performance. Accordingly, the artisan would be motivated to press the alkali strips of Takeuchi into the current collector thereof.

Further, the artisan would be motivated by the patent of Howard et al. to use separators simultaneously on the anode and cathode assemblies of Takeuchi et al. Although Takeuchi et al. in effect disclose that a separator is placed on either the anode *or* the cathode assembly, the artisan would understand that covering both electrode assemblies (as shown by Howard et al.) would be an advantageous modification of the battery of Takeuchi et al. because dendrite protection would be increased and delamination of both active material layers would be

decreased. As stated in Howard et al. at column 3, line 40, "[t]he separator pouch then prevents the transport of stray material in the cell which could cause a short circuit and the double thickness of the separator between anode and cathode elements better resists damage during the winding process." The separators of Howard et al. are made by a folding and sealing method (col. 5, lines 33-68 of Howard et al.), as recited in claim 95.

Finally, the artisan would be motivated to use at least two tabs in combination with the anode current collector of Takeuchi. In column 5, line 17, Howard teaches that "[a]dditional connector tabs may also be added if improved reliability of the connections is desired." As such, the artisan would be motivated to use at least two tabs in combination with the anode current collector of Takeuchi.

8. Claim 114 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi et al. in view of Idota et al (U.S. Patent 5,780,181).

Takeuchi is applied to claims 104, 108, 109, 111-113, and 115 for the reasons stated above.

However, the reference does not expressly teach that the anode current collector comprises titanium, as recited in claim 114.

Idota is directed to a lithium battery. In column 16, line 49, the reference teaches that suitable negative electrode current can be made of nickel and titanium, among other materials.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because Idota indicates that nickel and titanium are functionally equivalent for use as anode current collector materials. Therefore, the artisan would be sufficiently skilled to substitute the titanium of Idota for the nickel of Takeuchi. An express suggestion to substitute one equivalent component or process for another is not necessary to render such substitution obvious. *In re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982); MPEP §2144.06.

Response to Arguments

9. Applicant's arguments filed May 24, 2004 have been fully considered but they are not persuasive. Applicant asserts that a fair reading of Takeuchi cannot be deemed to include a teaching that the anode current collector is "substantially" shorter than the lithium anode member. However, it is submitted that Takeuchi can in fact be considered to teach such a limitation. Applicant is reminded that "substantially" is both a relative and broad term. See *In re Nehrenberg*, 280 F.2d 161, 126 USPQ 383 (CCPA 1960); MPEP §2173.05(b). It is submitted that absent a definition in the specification, the term "substantially" should be interpreted as broadly as reasonably possible. MPEP §2111. As noted above, the specification discloses that the length of the collector may constitute a wide variety of percentages of the length of the anode, including relatively high values such as 90%. However, this is not considered to constitute an express definition of "substantially." Thus, in view of a broad interpretation of this

term, the disclosure of Takeuchi, particularly at Figure 7 and column 4, line 40, fairly teaches that the length of the collector is “substantially” less than the length of the lithium strip. As such, Takeuchi is still believed to be applicable to the instant claims.

Allowable Subject Matter

10. Claims 105 and 106 contain allowable subject matter as currently drafted, but are rejected under 35 USC §112, first paragraph herein.

11. The following is a statement of reasons for the indication of allowable subject matter:

Claims 105 and 106 recite that the current collector dimension comprises “approximately less than about half” and “approximately less than about one-fourth” the anode dimension, respectively. Takeuchi, the closest prior art, does not teach or fairly suggest these ranges. As such, claims 105 and 106 contain allowable subject matter as currently drafted.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after


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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr, can be reached at (571) 272-1414. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jonathan Crepeau
Patent Examiner
Art Unit 1746
July 29, 2004